



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,955	01/31/2002	Raffi Codilian	K35A1030	4573

35219 7590 04/26/2004

WESTERN DIGITAL TECHNOLOGIES, INC.
20511 LAKE FOREST DR. -C205
LAKE FOREST, CA 92630

EXAMINER

WATKO, JULIE ANNE

ART UNIT	PAPER NUMBER
----------	--------------

2652

3

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/062,955

Applicant(s)

CODILIAN, RAFFI

Examiner

Julie Anne Watko

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11, 12 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 7-10 and 13 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 4, line 23- page 5, line 1, the specification recites "Figure 4 is an enlarged cross sectional view of a portion of the disk drive of Figure 1 as seen along axis 4-4". This is inconsistent with the appearance of Fig. 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-6, 12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Munninghoff et al (US Pat. No. 6600625 B1).

As recited in claim 1, Munninghoff et al show a disk drive (see Fig. 6 or Fig. 7, for example) comprising: a disk drive housing 12 including a housing body portion and an airflow suppressor portion (618 or 718, for example) extending from the housing body portion; a disk (624 or 724) rotatably coupled to and adjacent the housing body portion, the disk including an inner disk edge (such as 626B), an outer disk edge (such as 626C) and a disk surface disposed between the inner and outer disk edges; and a head stack assembly 16 rotatably coupled to the housing body portion about a pivot axis, the head stack assembly including an actuator arm (see

Art Unit: 2652

32) including a first arm surface disposed adjacent the disk surface and an opposing second arm surface, the head stack assembly being sized and configured to pivot the actuator arm; and upstream and downstream regions disposed along the disk surface, the upstream and downstream regions being divided by a plane perpendicular to the disk surface through the pivot axis and tangent to the inner disk edge adjacentmost the actuator arm, the upstream region including disk positions which rotate towards the actuator arm; wherein the airflow suppressor portion is radially disposed substantially between the inner and outer disk edges within the upstream region (see arrows in Figs. 6 and 7) and extends substantially entirely from the housing body portion beyond the second arm surface towards the disk surface for modifying disk rotation induced airflow ("The deflector finger redirects fluid flow away from the transducer assembly and reduces the fluid turbulence experienced by the transducer assembly", see col. 2, lines 39-42) upon the head stack assembly adjacent to the disk surface.

As recited in claim 2, Munninghoff et al show that the airflow suppressor portion includes a trailing side (left side in Fig. 6, right side in Fig. 7) disposed and an opposing leading side (upper side in Fig. 6, left side in Fig. 7).

As recited in claim 3, Munninghoff et al show that the trailing side is disposed adjacent the actuator arm with the actuator arm in a parked position (see Fig. 7).

As recited in claim 4, Munninghoff et al show that the trailing side and the leading side are generally parallel (see Fig. 7) to each other.

As recited in claim 5, Munninghoff et al show that the trailing side and the leading side are tapered (see Fig. 6) with respect to each other from the inner disk edge towards the outer disk edge.

As recited in claim 6, Munninghoff et al show that the leading side is aligned generally tangential (see Fig. 6 or 7) with the inner disk edge.

As recited in claim 12, Munninghoff et al show that the airflow suppressor portion is formed of a metal material ("metals", see col. 6, line 61).

As recited in claim 14, Munninghoff et al show that the airflow suppressor portion is formed of a plastic material ("plastics", see col. 6, line 59).

4. Claims 1-3, 5, 11, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Machcha et al (US PAP No. 2002/0063991 A1).

As recited in claim 1, Machcha et al show a disk drive housing including a housing body portion ("a portion of a cover plate or a portion of a base plate", see ¶0067; see also ¶0073, for example) and an airflow suppressor portion (820 or 860) extending from the housing body portion; a disk rotatably coupled to and adjacent the housing body portion, the disk including an inner disk edge 230, an outer disk edge 240 and a disk surface 805 disposed between the inner and outer disk edges; and a head stack assembly 160 rotatably coupled to the housing body portion about a pivot axis, the head stack assembly including an actuator arm 150 including a first arm surface disposed adjacent the disk surface and an opposing second arm surface, the head stack assembly being sized and configured to pivot the actuator arm; and upstream and downstream regions disposed along the disk surface, the upstream and downstream regions being divided by a plane perpendicular to the disk surface through the pivot axis and tangent to the inner disk edge adjacentmost the actuator arm, the upstream region including disk positions which rotate towards the actuator arm; wherein the airflow suppressor portion is radially disposed substantially between the inner and outer disk edges within the upstream region (see air

Art Unit: 2652

suppressor location in Fig. 3B) and extends substantially entirely from the housing body portion beyond the second arm surface towards the disk surface for modifying disk rotation induced airflow upon the head stack assembly adjacent to the disk surface (“reduction of cross-track motion 220 is accomplished by reducing the total cross-track momentum of fluid molecules that interact with disk drive components”, see ¶0037).

As recited in claim 2, Machcha et al show that the airflow suppressor portion includes a trailing side (facing downstream) disposed and an opposing leading side (facing upstream).

As recited in claim 3, Machcha et al show that the trailing side is disposed adjacent the actuator arm with the actuator arm in a parked position (see air suppressor location in Fig. 3B).

As recited in claim 5, Machcha et al show that the trailing side and the leading side are tapered with respect to each other from the inner disk edge towards the outer disk edge (see air suppressor shape in Fig. 3B).

As recited in claim 11, Machcha et al show that the airflow suppressor portion is integrally formed with the housing body portion (see especially Figs. 8A-B).

As recited in claim 15, Machcha et al show that the housing body portion is a disk drive base (see ¶0067, “a portion of a base plate”; see also ¶0073, “an element of a base plate”).

As recited in claim 16, Machcha et al show that the housing body portion is a disk drive cover (see ¶0067, “a portion of a cover plate”; see also ¶0073, “a cover plate”).

Allowable Subject Matter

5. Claims 7-10 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Long et al (US PAP No. 2003/0002206 A1) show a hard disk drive comprising a plastic air deflector (see ¶0023) which deflects airflow away from an actuator arm assembly. Sakata et al (US PAP No. 2002/0149876 A1) show a magnetic disk device with wind shield members for preventing flutter (see ¶0024; see especially Figs. 6B and 7B). Gibbs et al (US Pat. No. 6362937 B1) show a windage accelerator apparatus 200 for an air vane latch 140. Myokan et al (US PAP No. 2002/0071202 A1) show a spoiler and a shroud "preferably formed of a metal such as stainless steel or aluminum alloy, or of a resin material such as polycarbonate" (see ¶0040).

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (703) 305-7742. The examiner can normally be reached on Sat & Mon until 9PM, Wed & Fri until 5PM.

Art Unit: 2652

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Julie Anne Watko
Primary Examiner
Art Unit 2652

April 19, 2004
JAW

A handwritten signature in black ink, appearing to read 'Julie Anne Watko', with a stylized, flowing script.